HUMMEL

Setting Standards

TEMP-STAR

HOT RUNNER CONTROLLER

www.hummel.com

Control accuracy – process data assessment
Sytem protection – flexibility – ease of use

Device Functions	MINI	DIALOG	MULTI	MASTER	MASTER SL	PROFESSIONAL LC	PROFESSIONAL
Max. zones	1	40	36	60	72	96	180
Extendable		■		■	■	■	■
Sensor error detection	■	■	■	■	■	■	■
Load error detection	■	■	■	■	■	■	■
Softstart / ramp	■	■	■	■	■	■	■
Manual / Pulse operation	■	■	■	■	■	■	■
Auto-mode	■	■	■	■	■	■	■
Standby	■	■	■	■	■	■	■
°C / F switch over	■	■	■	■	■	■	■
Load current display	■	■	■	■	■	■	■
% display	■	■	■	■	■	■	■
Boost	■	■	■	■	■	■	■
Password protection	■	■	■	■	■	■	■
Compound heat-up		■	■	■	■	■	■
Alarm input / output		■	■	■	■	■	■
Mold memory		o	■	■	■	x	■
Diagnosis / wire test			o	■	■	x	■
Data recording			o	■	■	x	■
Start assistant				■	■	x	■
Performance monitoring				■	■	x	■
Measuring zones				■	■	x	■
Phase control				■	■	■	■
Group formation			■	■	■	x	■
Error logbook				■	■	x	■
Event logbook				■	■	x	■
Substitute sensor operation				■	■	x	■
Language selection				■	■	x	■
Diagram recording						x	■
MOLD DRIVE							o

■ HUMMEL Standard
o Optional
x Optional with PC software

Explanation of Device Functions

% display
Indicates the current heat output in percent; e.g., 50 % = half output.

°C / F switch-over
Selection of the temperature unit (Celsius or Fahrenheit) via the Parameter menu.

Alarm input / output
Interface to machine via switching contacts; e.g. alarm indication or standby.

Auto-mode
If this function is activated, the average output is used for continued heating in the event of sensor breakage.

Boost
Brief setpoint increase; e.g. for removing nozzle obstructions (jet clearing).

Compound heat-up
Uniform, controlled heat-up process in which the fastest heating circuit waits for the slowest circuit to catch up.

Data recording
Storage of production data; e.g. for quality documentation purposes.

Diagnosis / wire test
Checks the connected hot-runner mold for correct wiring and indicates errors.

Diagram recording
Records process data as diagrams; e.g. for error analysis.

Error logbook
Recording of all process events; e.g. alarms triggered during operation. Reliable detection of polarity errors, breakages and short circuiting.

Event logbook
Records user entries and process events; e.g. alarms triggered during the manufacturing process.

Group formation
Combines several heating zones for fast parameter setting (e.g. setpoint).

Language selection
Allows language selection in the Operating and Help menus.

Load error detection
Indicates potential errors regarding the connected heating circuit. Reliable detection of breakages and excess currents.

Max. zones
Maximum number of heating zones that can be connected (depending on type series).

Mold memory
For storing all of the settings of a connected hot-runner mold.

Password protection
Code for accessing the Parameter menu; prevents unauthorized entries.

Phase control
Optional operation of the heating with adjusted output voltage if required.

Manual / Pulse operation
Allows manual heat output setting; manual operating mode.

Sensor error detection
Indicates potential errors regarding the connected temperature sensor.

Softstart / ramp
Reduced heating speed to dry the heating elements.

Standby
Setpoint reduction via front button or alarm input; e.g. if interruption/breakdown occurs.

Substitute sensor operation
Allows using the sensor of a neighboring mold to continue the production process in the event of sensor breakage.

Extendable
The devices can be ordered for the currently required zone number and then later extended to the maximum zone number with additional pluggable control cards.

Start assistant
The start assistant provides quick access to production start settings.

Performance monitoring
The average heating power is detected and monitored. An error message will appear if there are any discrepancies caused by leaks or heating errors.

Measuring zones
Each control area can also be defined as a measuring zone. The tool temperature can be displayed and monitored using a sensor on the tool.

MOLD DRIVE
In addition to heat channel regulation the devices can be used to control servo drives, enabling all different kinds of movement on the tool.

From Touchsensors up to Touchpanel

TOUCH MADE BY HUMMEL

■ multitouch ■ capacitive ■ durable

Table of Contents

Multi-zone controllers

MULTI 8
WIRE TEST 10
MULTI VIEW 11
MASTER 12
MASTER SL 14
PROFESSIONAL 16
MOLD DRIVE 18
PROFESSIONAL LC 20

Slide-in controllers

DIALOG slide in controller 22
Housings for slide-in controllers 24
up to 40 zones
MINI one zone controller 26

Built-in controller

INTEGRAL 28

Accessories

Load cables 30
Thermocouple cables 31
Mold connectors 32
Single connectors 33
Cables 34
Accessories 35

Limited Liability

Products, design, colors and dimensions are subject to change without prior notice. We reserve the right to make technical improvements on all our products, currently ordered or for future orders. It is the user's responsibility to verify all dimensions and technical data. HUMMEL AG will assume no liability regarding information provided to the user by published literature or inside technical staff, its distributors and outside sales personnel. Errors in the catalog can occur and shall not create any liability whatsoever for HUMMEL AG. All information provided by HUMMEL AG is without guarantee and must be verified by the user.

Created & Printed by

Design and layout: intermedia marketing gmbh, Mozartstraße 2, 79183 Waldkirch, Germany, Tel. +49 (0) 76 81 / 47 78 99-0, Fax +49 (0) 76 81 / 47 78 99-27, kontakt@intermedia-marketing.de
Print: Druckerei Furtwängler GmbH, 79211 Denzlingen, Germany, Tel. +49 (0) 76 66 / 13 31. Printed on ecologically friendly paper in May 2014.

HUMMEL AG

hummel.com – your website!

Online Catalog

- Product Pictures and Product Information
- Product and Assembly Videos
- Assembly and Operations Manual
- Technical drawings
- 3D data
- Certificates

Download-Center

- Catalog and Flyer
- Assembly instructions and installation instructions
- Press releases
- Certificates and approvals
- RoHS, REACH / SVHC, WEEE, Conflict minerals
- ...

Searching Products

- Part Number search
- Searching Details

Enclosure-Configurator

- Individual Enclosures
- Enclosure Solutions
- Online configuration, requesting and ordering

Technology Center

- Technical Information (Protection, thread, material, ...)
- Diagrams and evaluation
- Product description
- Assembly Video and Operations Manual

News of the HUMMEL AG

- Trade fairs and exhibitions
- Press releases
- New Products
- Job vacancies
- Studies, training and vocational practical training

Solutions all from one source

Touch

Cable Glands, Circular Connectors

NEW

Solutions

Industrial Enclosures

Electronic

MULTI

+ Compact unit for 6 to 36 heating zones
+ Modular design, thus easy to maintain
+ With mold memory
+ Sensor monitoring and power measurement
+ Programmable soft-start ramp
+ Process data detection via Ethernet Interface MULTI-VIEW

Multi-zone controllers

The MULTI 6 controller series is available in practical 6-zone steps. Its modular design with independent slide-in controller slots ensures fast replacement in case of malfunction.

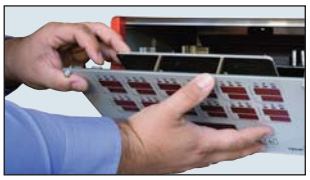
Perfect ease of use and a straightforward display showing all instantaneous and setpoint values guarantee the smooth integration of these controllers into the production processes.

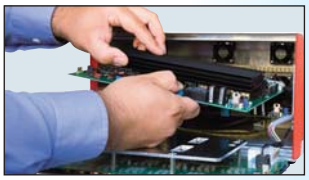
The alarm indicators only light up in case of error or malfunction. This allows to check the operating state of the hot runner system at a glance.

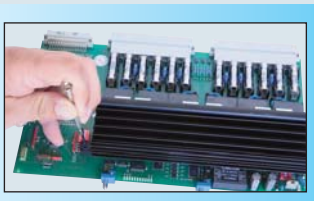
Due to the presetting of the system's basic parameters by the factory, time-consuming configuration is not necessary – the unit is immediately ready for use. The mold memory enables you to store the settings for all of the hot runner molds and access these programs by a touch of the button.

A solid metal housing with powerful cooling fans allows continuous operation at maximum load even under extreme operating conditions. The rear panel features separate connectors for the load and thermocouples, the power switch, interface and alarm connectors.

The temperature can be increased or decreased externally by the alarm cable connecting the controller to the control system of the machine. In case of malfunction, the controller stops the machine immediately.

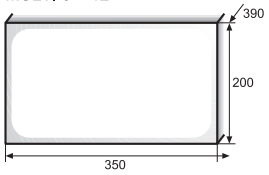




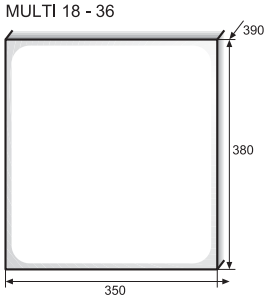


Dimensions

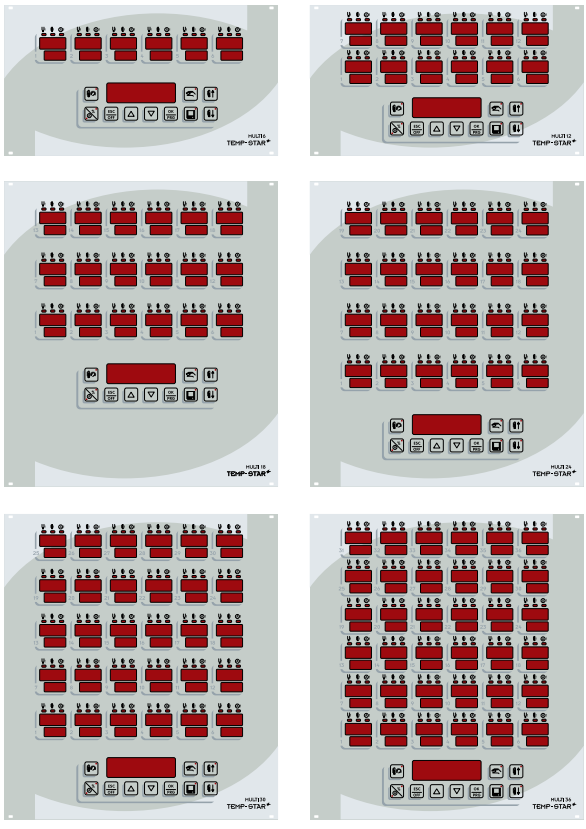
MULTI 6 + 12



MULTI 18 - 36



MULTI series



Specifications

Housing
Metal enclosure, powder-coated

Available units / Order information
6-, 12-, 18-, 24-, 30 and 36-slots / TS-MULTI-6...36

Mold connection (load and TC separate)
.....Connectors x number of poles
6-zones .....2 x 16-poles
12-zones .....1 x 24-poles / 1 x 32-poles (TC)
18-zones .....2 x 24-poles / 2 x 32-poles (TC)
24-zones .....2 x 24-poles / 2 x 32-poles (TC)
30-zones .....3 x 24-poles / 3 x 32-poles (TC)
36-zones .....3 x 24-poles / 3 x 32-poles (TC)

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
400 VAC / 32 A CEKON / 22 kW

Characteristics
Power output:.....max. 16 A per zone, contactless
.....semiconductor, zero-switching
Thermocouple: .....Fe-CuNi Type J, L or K
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

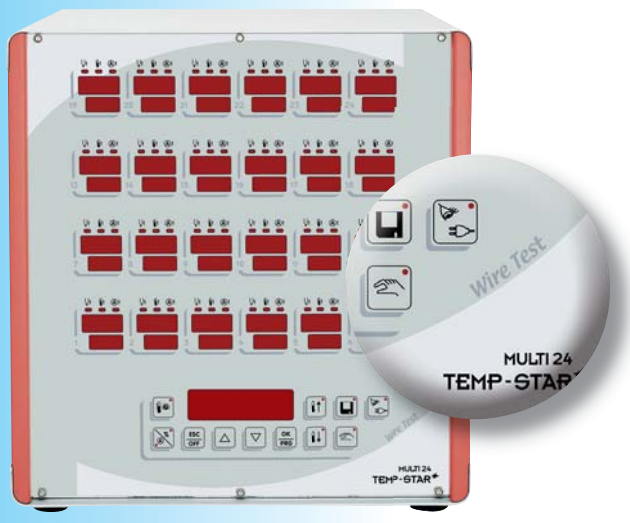
Features
Alarm outputs: .....2 changeover contacts
Control inputs: .....2 switch inputs (contacts)
Data interface: .....for SUB-D plug 9-pole

Information displayed
Setpoint and instantaneous values for all zones (°C or °F), power output in amperes or percent, alarm indicators for temperature (over- or low temperature), current (overcurrent, open load), TC malfunction (open, reverse)

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

WIRE TEST

+ detects mold wiring errors
+ for MULTI 12, 24 & 36
+ prevents machine downtimes



Wire test (mold diagnosis)

The optional diagnostic function WIRE TEST is available for our proven MULTI hot-runner controllers with 12, 24 and 36 zones. It is extremely easy to operate via a new function button.

The connected molds are scanned and the result is directly displayed on the front panel. This function offers you increased safety of operation, as potential faults – such as sensor polarity reversal or mold wiring errors – are detected fully automatically. This helps to prevent downtimes and protects your molds against damage.

Specifications

see MULTI series page 9

Order information
TS-MULTI-12, 24, 36-WT

MULTI View

+ for all MULTI control units
+ for mold administration and process data transfer
+ USB or Ethernet connection
+ with PC Software for WINDOWS®

PC Interface

This interface allows you to transfer all of your mold and process data between a MULTI controller and a PC or laptop, using either a USB interface or an Ethernet connection.

You just need to connect the interface box to the standard data interface of the control unit. The output of the box then provides the required interface. Power is supplied directly via the interface in the case of USB operation. In the Ethernet version, power is provided by the plug-in PSU supplied.

Following installation of the MULTI-VIEW II software included in the delivery, you can conveniently store your mold data in a PC file and, if needed later, transfer it back to the controller again. You can use any WINDOWS® directory of your choice for the process data. This ensures that the data is readily available if, for example, you wish to edit it later by PDA systems.

Specifications

Housing
Plastic shell housing

Connection
2 m controller connecting cable, RJ45 Ethernet plug or USB plug, power supply plug for PSU

Power supply
Via USB interface or PSU supplied

Software
On CD for all common WINDOWS® versions

Order information

Ethernet:	TS-MULTI-VIEW-II-TCP-IP
USB:	TS-MULTI-VIEW-II-USB

MASTER

+ for 12 to 60 zones
+ extendable with pluggable control cards
+ Touch screen with brilliant display and on-screen instructions
+ Start assistant for super fast basic setting
+ Performance monitoring for error detection

MASTER Series

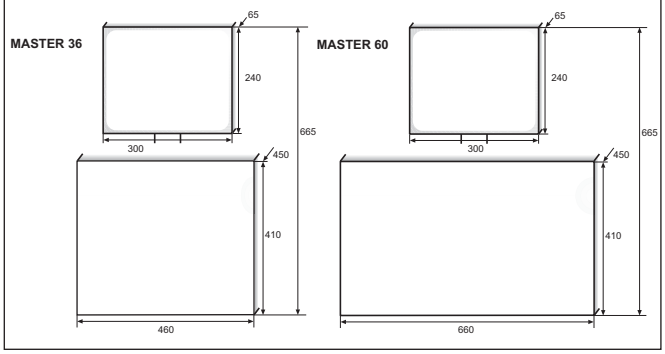
Superior control precision and convenient, straightforward touchscreen operation are the hallmarks of the multi-zone controllers of the MASTER series.

A help function is provided to save you the cumbersome process of searching information in the user manual. It can be called up at any point of the menu structure to provide you with the specific information you need.

Apart from comprehensive system monitoring designed to protect the connected hot-runner molds, these units offer a wire-test diagnostic function, a tool memory and several recording or documentation options for which the standard interfaces can be used as well.

The devices are available in two different sizes, either for 36 or 60 zones (housing fully equipped in each case). The 6-zone plug-in control cards can be inserted or replaced from the front.

Dimensions



Connections

Specifications

Housing
Metal housing with remote touch screen

Available units / Order information
12- to 60-zone (6-zone steps) / TS-MASTER-12…60

Mold connection (load and TC separate)
12 zones wired to a 24-pole load connector and a 32-pole temperature sensor connector (HAN A)
Special configurations on request

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
400 VAC / 32 A CEKON / 22kW
Optional:
400 VAC / 63 A CEKON / 44kW
Higher load on request

Characteristics
Power output:.....max. 16 A per zone, non-contact,
.....switching at passage through zero
.....with phase-angle control on request
Thermocouple: .....Fe-CuNi type J, L or K
Control precision: .....Greater than 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature:.10 - 40 °C (50 - 104 °F)

Features
Alarm outputs:.....2 changeover contacts
Control inputs:.....2 switch inputs (contacts)
Interfaces:.....SUB-D plug 9-pin (device)
.....USB; Ethernet; VGA; PS2; RS232
.....(Touch Screen)

Information displayed
12" - SVGA-LCD with touch screen
Constantly displayed: setpoint and actual values plus power output for all zones

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

MASTER SL

+ up to 72 zones
+ flexible withdrawable unit design
+ space-saving, free-standing housing
+ Process control and diagnosis function

MASTER SL controllers

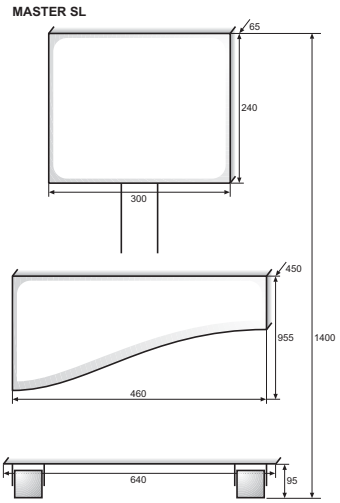
The MASTER SL control series is designed to meet the highest demands with up to 72 control points. The devices start at 24 zones and can be extended to 72 using the 6 withdrawable units.

The control devices are extremely accurate and all of the functions of the MASTER series e.g performance monitoring for leakage detection as well as tool temperature measuring for checking mold cooling.

The 12" touch screen with its unique colour display allows all settings to be changed quickly and easily. The on-screen instructions and settings asssistant provide enhanced user-friendliness.

The standard data interfaces enable data transfer and, if necessary, remote diagnosis over the Internet.

Dimensions



Connections

Specifications

Housing
Bottom cabinet: .....Metal enclosure, powder-coated;
.....with lockable castors
Display :.....Metal enclosure, powder-coated;
.....with touch screen interface

Available units / Order information
24- to 72-zones, in 6 zone steps / TS-MASTER-SL-24...72

Mold connection (load and TC separate)
12-zone units wired to a 24-poles load connector
and a 32-poles TC connector
Special configurations on request

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
400 VAC / 63 A CEKON / 44 kW

Characteristics
Power output:.....max. 16 A per zone, contactless
.....semicconductor, zero-switching
Thermocouple: .....Fe-CuNi type J, L or K
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

Features
Alarm outputs: .....2 changeover contacts
Control inputs: .....2 switch inputs (contacts)
Interfaces:.....SUB-D plug 9-pin (device)
.....USB; Ethernet; VGA; PS2; RS232
.....(Touch Screen)

Operation & display
12"-SVGA-LCD with touch-screen
Permanent indication of setpoint and instantaneous values plus power outputs for all zones

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

PROFESSIONAL

+ For 48 to 180 zones
+ Touch-screen control panel with on-screen manual
+ Error and event log
+ Start-up wizard for rapid base setting
+ Performance control and mold temperature measurement for advanced process control.

Professional controllers

The PROFESSIONAL controller series has been designed for controlling multi-cavity molds, thus satisfying the highest quality demands. In addition, extensive diagnostic and log functions are available that greatly facilitate testing and starting up complex hot runner molds.

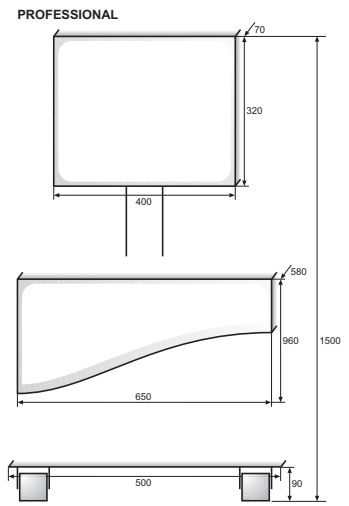
PC-based operation with a touch-screen panel ensures maximum operator convenience, thanks also to a clearly arranged display and optimal user guidance. If space is scarce, the control panel can be separated from the controller.

All parameter settings can be stored and managed conveniently in the system's memory, which provides extensive storage and display options.

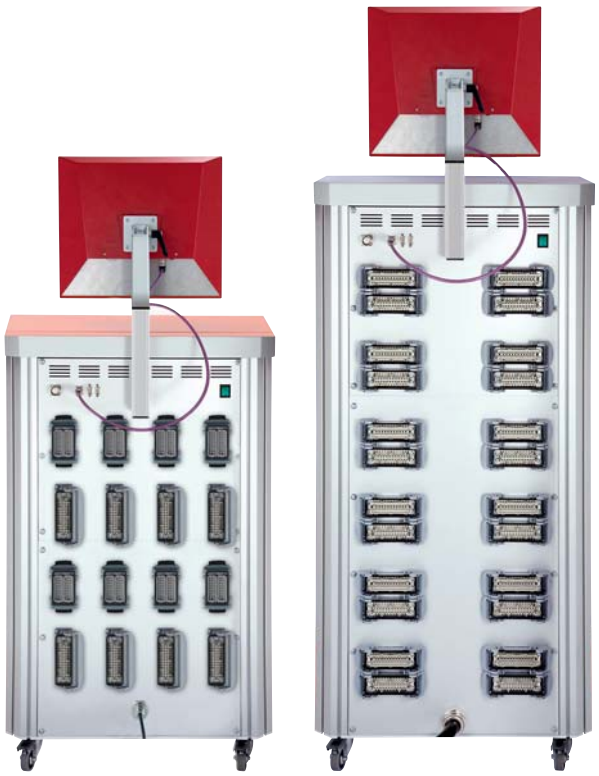
All production process parameters (as well as potential errors) are recorded and documented most clearly.

These controllers are available in 12-zone steps, each dozen being wired to a 24-pole load connector and a 32-pole sensor connector (HAN A). The modular pluggable control cards with 16 Amp power unit allow zones to be extended or to be quickly swapped if an error occurs.

Dimensions



Connections



Specifications

Housing
Bottom cabinet: .....Metal enclosure, powder-coated;
.....with lockable castors
Display: .....Metal enclosure,
.....powder-coated, with touch-screen
.....control panel

Available units / Order information
48- to 180-zones, in 12 zone steps /
TS-PROFESSIONAL-48...180

Mold connection (load and TC separate)
12-zone units wired to a 24-poles load connector
and a 32-poles TC connector
Special configurations on request

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
400 VAC / 63 A CEKON / 44 kW
Higher load on request

Characteristics
Power output:.....max. 16 A per zone, contactless
.....semiconductor, zero-switching
Thermocouple: .....Fe-CuNi type J, L or K
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

Features
Alarm outputs: .....2 changeover contacts
Control inputs: .....2 switch inputs (contacts)
Interfaces:.....SUB-D plug 9-pin (device)
.....USB; Ethernet; VGA; PS2; RS232
.....optional WLAN (Touch Screen)

Operation & display
15"-XGA-LCD with touch-screen
Permanent indication of setpoint and instantaneous
values plus power outputs for all zones

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

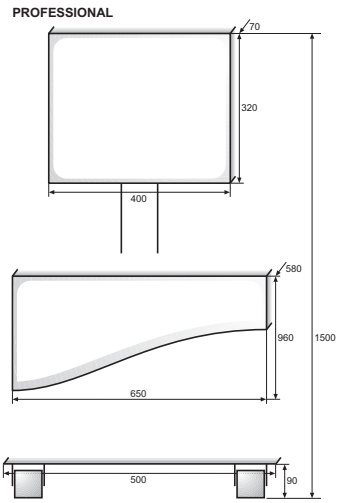
MOLD DRIVE

+ Temperature control for up to 48 heating zones
+ Motor control for up to four servo drives
+ Touchscreen operation with On Screen Manual
+ Monitoring of the hot-runner system and servo drives
+ Modular, easy-to-service device construction with plug-in cards

Hot-Runner Controller with Motor Control System

The MOLD DRIVE device combination, consisting of a hot-runner controller and motor control system, eliminates the need for a further peripheral device for electrically driven functions on the tool, e.g. for unscrewing or linear movements. In addition to problem-free operation at up to 180°C, the advantages of servomotors include utmost repeatability of motion sequences and precise reproducibility of the end position. Modular slide-in controller technology and the excellent control performance of the TEMP STAR PROFESSIONAL devices complement the positive aspects of the drive for hot-runner temperature control.
Both functions can be operated and managed easily via the robust capacitive touchscreen. The PC used for data visualisation and storage has various interfaces for data transmission and remote diagnosis.
Numerous monitoring functions, e.g. for torque or hot-runner temperature limits, detect faults or system errors and warn the operator of possible damage in good time.

Dimensions



Connections

Specifications

Housing
Bottom cabinet: .....Metal enclosure, powder-coated;
.....with lockable castors
Display: .....Metal enclosure,
.....powder-coated, with touch-screen
.....control panel

Available devices / Order information
12 to 48 heating zones, 1 to 4 servo drives
TS-MD-12…48HZ-1…4SM

Mold connection (load and TC separate)
12 zones each on a 24-pole load connector and a 32-pole thermocouple (HAN-A)
Special configurations on request

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
430 VAC / 63 A CEKON / 44 kW
Higher load on request

Characteristics
Power output:.....max. 16 A per zone, contactless
.....semiconductor, zero-switching
Thermocouple: .....Fe-CuNi type J, L or K
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

Features
Alarm outputs: .....2 changeover contacts
Control inputs: .....2 switch inputs (contacts)
Interfaces:.....SUB-D plug 9-pin (device)
.....USB; Ethernet; VGA; PS2; RS232
.....optional WLAN (Touch Screen)

Operation, display
15" XGA LCD, capacitive touchscreen

Motor connection
Load and feedback cables via M23 connector

Motors
1 to 4 servomotors, preferably complete drives from Servomold

PROFESSIONAL LC

96

- For 48 up to 96 zones
- reasonably priced membrane keyboard as a console or fixed panel
- Rugged, user-friendly construction
- highest level of user friendliness and extendable process control with optional PC software

Professional control unit LC

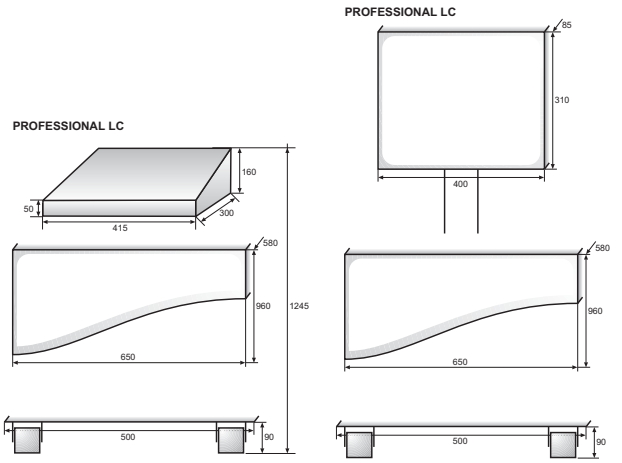
The LC series differs from the TEMP-STAR PROFESSIONAL unit with touch screen by employing a cost-effective production display for use in extremely demanding production environments. The rugged membrane keyboard with bright LEDs allows easy setting of all production parameters. The unit is equipped with an individual error indicator for each control zone.

An optional software is available for wiring testing, starting of new molds, mold data management or troubleshooting. This software can be installed on any PC or notebook with Windows®, giving the user access to all the same functions as on the touch-screen equipped unit, however, by using a mouse instead of a touch-screen.

A communication port on the back of the unit allows connection of the production display or a PC / notebook, even while the unit is running.

In case of a malfunction, service-friendly control cards for 6 zones each can be replaced without any tools. The units are built for 48 to 96 zones.

Dimensions



Connections

Specifications

Housing
Bottom cabinet: .....Metal enclosure, powder-coated;
.....with lockable castors
User panel:.....Metal enclosure; powder-coated;
.....with membrane keyboard

Available units / Order information
48- to 96-zones, in 12 zone steps /
TS-PROFESSIONAL-48...96-LC

Mold connection (load and TC separate)
12-zone units wired to a 24-poles load connector
and a 32-poles TC connector
Special configurations on request

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
400 VAC / 63 A CEKON / 44 kW
Higher load on request

Characteristics
Power output:.....max. 16 A per zone, contactless
.....semiconductor, zero-switching
Thermocouple: .....Fe-CuNi type J, L or K
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

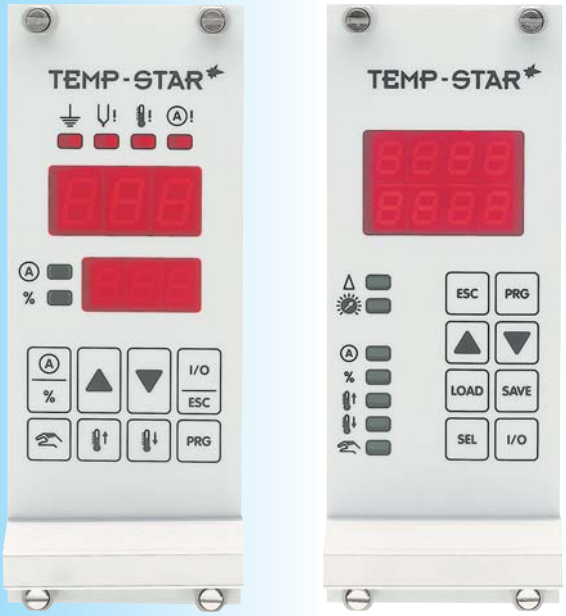
Features
Alarm outputs:.....2 changeover contacts
Control inputs:.....2 switch inputs (contacts)
Data interface: .....for SUB-D plug 9-pole
User panel:.....M16 connector 10-pole

Operation, Information displayed:
Membrane keyboard with LED display for 24-zones, scrollable. Setpoint and instantaneous values and alarm indicators. Optional operation with a PC / Laptop.

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

DIALOG

+ Flexible slide-in technology
+ 16-ampere power unit integrated
+ Replacement within seconds in case of failure
+ Central control with memory function
+ Optimal mold protection
+ Ground leakage measurement



Slide-in controllers with central control unit

The DIALOG series combines all of the advantages of the classical, single slide-in controller with the central handling afforded by a multi-zone controller. Available controller housings can be equipped with just the number of slide-in modules actually needed, plus a central control unit if required. Unneeded slots simply remain empty and can be refitted at any time.

The integrated 16-ampere (3.600 watt) power unit allows fast and easy module replacement, without the need to open the housing or disconnect any cables!

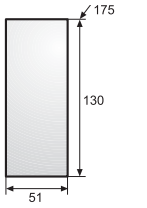
The DIALOG central control unit fits into any empty slot of the housing and allows central adjustment of any number of slide-in modules. All functions can be accessed and controlled either directly by the control module or the central control unit.

The front panel buttons guarantee easy operation. Both the instantaneous and setpoint values are permanently displayed. In addition, the setpoint window allows to display the instantaneous output power either in amperes or percent.

Ground fault, temperature deviation, overcurrent and sensor error are monitored and indicated separately for each control module. Together with the programmable soft-start function, the DIALOG series thus provides optimal protection for the connected hot runner system.

Dimensions

DIALOG slide-in



Specifications

Slide-in controller & central control unit
European standard-size PCB, 160 x 100 mm

Connections
via central multipoint connector provided in housing

Power supply
230 VAC / 50 - 60 Hz

Slide-in controller characteristics
Power output:.....max. 16 A per zone, contactless
.....semiconductor, zero-switching
Thermocouple: .....Fe-CuNi type J or L
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

Information displayed on slide-in controller
Setpoint and instantaneous values for all zones (°C or °F), power output in amperes or percent, alarm indicators for temperature (over- or low temperature), current (overcurrent, open load), ground fault, TC malfunction (open, reverse)

Order information
TS-DIALOG-REGELEINSCHUB (Slide-in controller)
TS-DIALOG-ZENTRALE (Central unit)

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

Housings

+ For DIALOG slide-in controllers
+ Flexibility due to modular design
+ Powerful cooling fans
+ Alarm connector
+ Data interface

Housings for slide-in controllers

The stylish and robust metal housing can be fitted with withdrawable units from the DIALOG series and central control unit if desired.

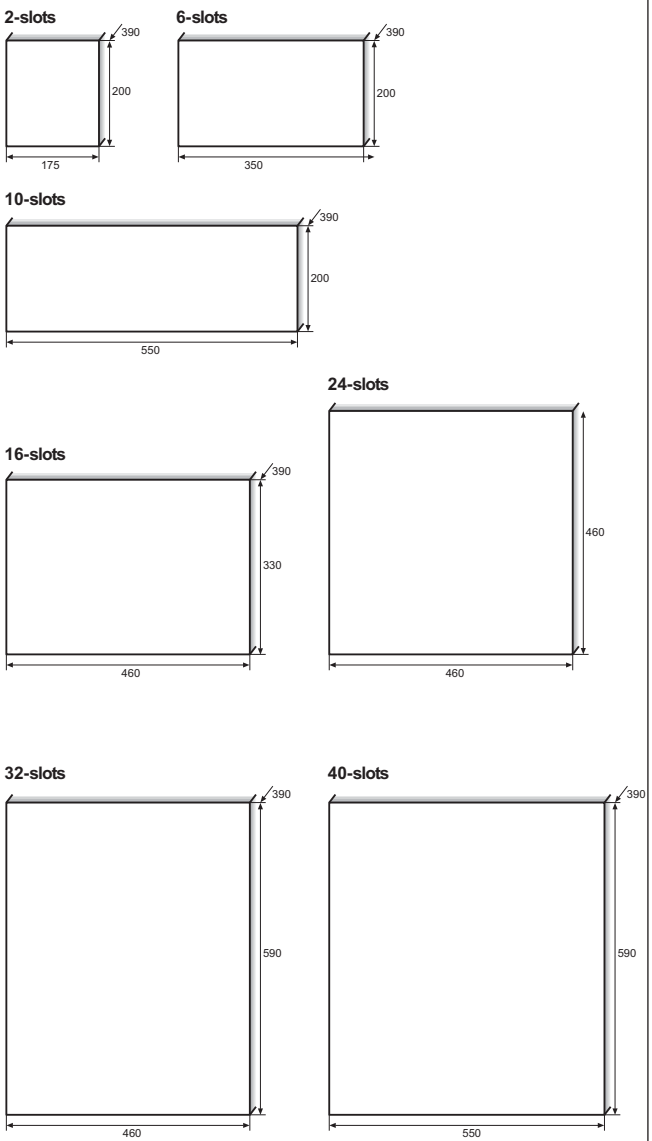
The slots can be filled with any number of controller modules. Unused slots have to be covered with a cover plate and can be refitted later if necessary. Thus, the user gets a highly flexible system that can be adapted perfectly to individual requirements.

As all controllers come with integrated power units, replacing modules or adding new ones is just a matter of seconds, without the need to open the housing or disconnect any cables! This minimizes down time in case of malfunction.

The rear panel features separate connectors for the load and the thermocouples, the alarm and interface connectors, and the load circuit fuses.

The temperature can be decreased externally by the alarm cable connecting the controller to the control system of the machine. In case of malfunction, the controller stops the machine immediately. The standard data interface can be used for remote control or logging tasks.

Dimensions



Specifications

Housing
Metal enclosure, powder-coated

Available sizes / Order information
2-, 6-, 10-, 16-, 24-, 32- and 40-slots /
TS-REGLERGEHAEUSE-2...40-FACH

Mold connection (load and TC separate)
.....Connectors x number of poles
2-slots .....2 x 4-poles
6-slots .....2 x 16-poles
10-slots .....1 x 24-poles / 1 x 32-poles (TC)
16-slots .....4 x 16-poles
24-slots .....2 x 24-poles / 2 x 32-poles (TC)
32-slots .....3 x 24-poles / 3 x 32-poles (TC)
40-slots .....4 x 24-poles / 4 x 32-poles (TC)
Special configurations on request

Power supply (+/- 10 %, 50 - 60 Hz)
Voltage / Connector / Connected load
2-slots: .....400 VAC / 16 A CEKON / 11 kW
Others:.....400 VAC / 32 A CEKON / 22 kW
Higher loads on request

Load circuit fuses
16 ampere FF
located on rear panel

Cooling fans
Cooling fans
Housing sizes.....Number of fans
2-slots.....1
6-slots.....2
10-, 16-, 24-, 32-, 40-slots 3

Alarm connector
Circular plug 12-pole,
1 alarm output / max. 33 V - 0,5 A
1 „Standby" switch input (contact)
for alarm cables, see „Accessories"

Interface connector
SUB-D, 15-pole, female

MINI

+ For 1 zone, 10 amp max.
+ Cost-effective compact unit
+ Mains connector with protective earth
+ Fully functional hot runner monitoring

Basic control unit

This compact unit is designed to provide temperature control of a load circuit. It is suitable for load currents up to 10 A. The control unit is powered through a 230 VAC mains plug with protective earth.

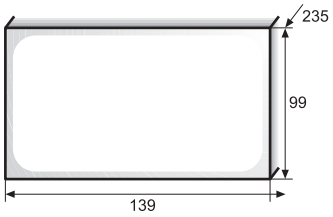
The unit is operated via buttons on the front panel, where the instantaneous and setpoint values are constantly displayed. The display for the setpoint can also be used to indicate the output power in either amperes or percent. Manual operation, standby and boost functions can be directly accessed via front panel buttons.

For highest possible protection of the hot runner, all possible malfunctions, like ground fault, temperature deviations, overcurrent and sensor breakage are constantly monitored and instantly indicated. Additional protection is provided by the programmable soft-start function.

The back side of the rugged metal housing holds two 4-pole connectors for load and thermocouple, the load circuit fuse and the unit's main switch.

Dimensions

MINI



Specifications

Housing
Metal enclosure, powder-coated

Mold connection (load and TC separate)
2 x 4-poles

Power supply (+/- 10 %, 50 - 60 Hz)
230 VAC / SCHUKO connector / 2,3 kW

Characteristics
Power output:.....max. 10 A per zone, contactless
.....semicconductor, zero-switching
Thermocouple: .....Fe-CuNi type J or L
Control precision: .....Better 1 °C, self-optimizing
.....(if hot runner permits)
Control range: .....50 - 500 °C (122 - 932 °F)
Operating temperature: 10 - 40 °C (50 - 104 °F)

Operation
Membrane keyboard with LED display at the front

Information displayed
Setpoint and instantaneous values (°C or °F), power Output in amperes or percent, alarm indicators for temperature (over- or low temperature), current (overcurrent, open load), ground fault, TC malfunction (open, reverse)

Order information
TS-REGELGERÄT-1-FACH

Functions
Please open the page register of page 2 and align it on the left side. This gives you a convenient overview of all available functions. For function explanations, refer to page 3.

INTEGRAL

+ Add-on for machines
+ Modular for 6 - 48 controller circuits
+ Slide-in controller boards
+ Operation via machine

Built-in temperature controllers

The INTEGRAL temperature controllers were developed for machine installation. Thanks to the slide-in controller boards for 6 controller circuits each, a very flexible system can be obtained. The controllers are preferably recommended for hot runner applications, but may also be used for other applications.

The empty 19" rack for up to 48 controller circuits is ideally suited as a basic machine version with a good price / performance ratio. The controller can be later adapted according to requirements. The slide-in controller boards can be added or exchanged within shortest time without any tools.

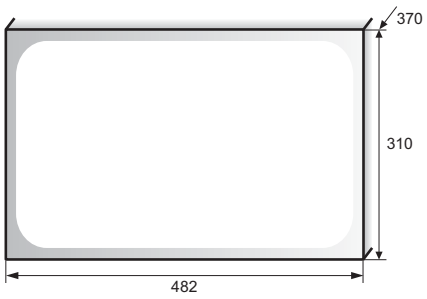
Screw terminals with labels ar provided for connection of load circuits and temperature sensor.

A CAN interface is provided for operation.

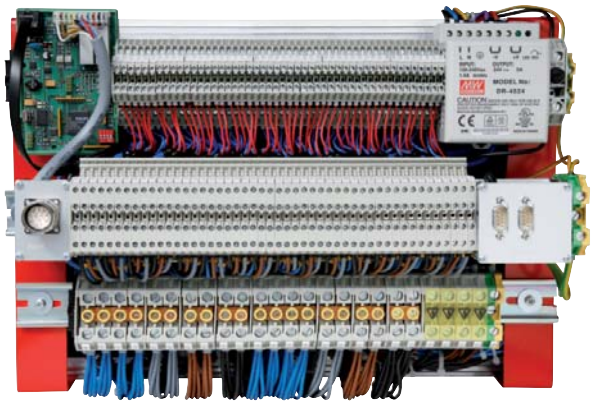
In addition to the existing PC user interface, the system can be adapted to work with other existing machine programs.

Dimensions

INTEGRAL



Connections



Specifications

Rack
19" rack; 84 TE, 7 HE for max. 48 zones

Available unit sizes
6 to 48 slots in increments of 6

Connections
Screw terminals for power supply, load circuits and thermocouples
12 pole alarm plug
Data bus SUB-D 9 pole (connector for control unit)

Power supply
Voltage / current / power requirements
400 VAC +/- 10% / 3 x 63 A / 44 kW

Specifications
Power output: .....max. 16 A per zone, contactless zero-
.....voltage switching
Thermonal sensor: .....Fe-CuNi Type J or L
Accuracy: .....better than 1 °C, self optimizing
(with appropriate hot runner version)
Control range: .....50 - 500 °C
Operational temperature: 10 - 40 °C
(Cooling fans must be provided
in rack for full output power)

Operating, indicators
With TEMP-STAR Professional Software, Professional membrane keyboard or customization for existing operational components

Load cables

+ Tested cables, length 5 m
+ Connection acc. to DIN 16765 – A

Controller-to-mold connection cables

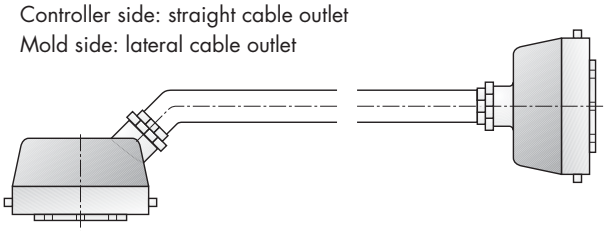
Connects the hot runner safely to the controller.

Heat-resistant PVC cables, ready for use, complete with high-quality, heavy-duty industrial connectors.

Available either complete (with plugs) and tested, or with open cable ends for customized connection.

Design

Controller side: straight cable outlet
Mold side: lateral cable outlet



Order information

Load cable complete	**for a max. of**
TS-LK-4-POL, 4-poles, length 5 m	2 zones
TS-LK-10-POL, 10-poles, length 5 m	5 zones
TS-LK-16-POL, 16-poles, length 5 m	8 zones
TS-LK-24-POL, 24-poles, length 5 m	12 zones
Load cable, ends open	
TS-LK-4-POL-OE, 4-poles, length 5 m	2 zones
TS-LK-10-POL-OE, 10-poles, length 5 m	5 zones
TS-LK-16-POL-OE, 16-poles, length 5 m	8 zones
TS-LK-24-POL-OE, 24-poles, length 5 m	12 zones

(Special lengths and configurations on request)

Thermocouple cables

- Compensation cables, FeCuNi (for thermocouples type J and L)
- Connection acc. to DIN 16765 – A

Controller-to-mold connection cables

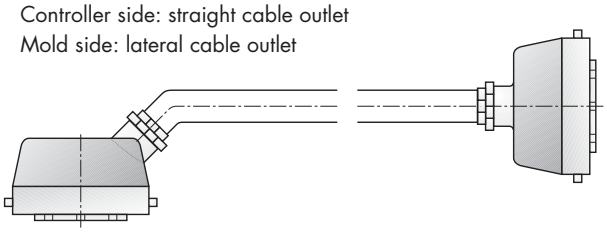
Connects the hot runner safely to the controller.

Heat-resistant compensating lines, ready for use, complete with high-quality, heavy-duty industrial plugs (type HAN-A).

Available either complete (with connectors) and tested, or with open cable ends for customized connection.

Design

Controller side: straight cable outlet
Mold side: lateral cable outlet



Order information

TC cables complete	**for a max. of**
TS-TFK-4-POL, 4-poles, length 5 m	2 zones
TS-TFK-10-POL-HAN-A 10-poles, length 5 m	5 zones
TS-TFK-16-POL-HAN-A 16-poles, length 5 m	8 zones
TS-TFK-24-POL-HAN-A32 24-poles, length 5 m, connector 32-poles	12 zones
TC cables, ends open	
TS-TFK-4-POL-OE, 4-poles, length 5 m	2 zones
TS-TFK-10-POL-HAN-A-OE 10-poles, length 5 m	5 zones
TS-TFK-16-POL-HAN-A-OE 16-poles, length 5 m	8 zones
TS-TFK-24-POL-HAN-A32-OE 24-poles, length 5 m, connector 32-poles	12 zones

(Special lengths and configurations on request)

Mold connectors

+ For load or sensor, or both combined
+ For connection acc. to DIN 16765 – A + B

Mold connectors

These high-quality industrial connectors are suitable to be fitted to injection molds.

We offer connectors for separate load and sensor wiring as well as for combined wiring.

Order information

Load connectors (max. contact load 16 A)	**for a max. of**
„Load" mold connector	
4-poles, male insert, fixing clamp 1x	2 zones
TS-WLS-4-POL	
10-poles, male insert, fixing clamp 1x	5 zones
TS-WLS-10-POL	
16-poles, male insert, fixing clamp 1x	8 zones
TS-WLS-16-POL	
24-poles, male insert, fixing clamp 1x	12 zones
TS-WLS-24-POL	
Thermocouple connectors (HAN A)	
„TC" mold connector	
4-poles, female insert, fixing clamp 1x	2 zones
TS-WTFS-4-POL	
10-poles, female insert, fixing clamp 1x	5 zones
TS-WTFS-10-POL-HAN-A	
16-poles, female insert, fixing clamp 1x	8 zones
TS-WTFS-16-POL-HAN-A	
32-poles, female insert, fixing clamp 2x	16 zones
TS-WTFS-32-POL-HAN-A	
Combination connectors (max. contact load 16 A)	
„Load / TC" mold connector	
4-poles, male insert, fixing clamp 1x	1 zones
TS-WLTFS-4-POL	
8-poles, male insert, fixing clamp 2x	2 zones
TS-WLTFS-8-POL.....	
16-poles, male insert, fixing clamp 2x	4 zones
TS-WLTFS-16-POL.....	
24-poles, male insert, fixing clamp 2x	6 zones
TS-WLTFS-24-POL	

Single connectors

- Male or female contacts
- Cable outlet straigth or lateral

Single connectors

These high-quality industrial connectors are suitable for assembling customized connecting cables.

The connector housings are available with socket or pin contacts, and with a straight or lateral cable outlet.

Order information

Load connectors (max. contact load 16 A)	**for a max. of**
Male or female insert, Cable outlet straigth or lateral	
4-poles, fixing clamp 1x TS-LS-4-POL	2 zones
10-poles, fixing clamp 1x TS-LS-10-POL	5 zones
16-poles, fixing clamp 1x TS-LS-16-POL	8 zones
24-poles, fixing clamp 1x TS-LS-16-POL	12 zones
Thermocouple connectors (HAN A)	
Male or female insert, Cable outlet straigth or lateral	
4-poles, fixing clamp 1x TS-TFS-4-POL	2 zones
10-poles, fixing clamp 1x TS-TFS-10-POL-HAN-A	5 zones
16-poles, fixing clamp 1x TS-TFS-16-POL-HAN-A	8 zones
32-poles, fixing clamp 2x TS-TFS-32-POL-HAN-A	16 zones
Combination connectors (max. 16 A Load and TC combined),	
Male or female insert, Cable outlet straigth or lateral	
4-poles, fixing clamp 1x TS-LTFS-4-POL	1 zone
8-poles, fixing clamp 2x TS-LTFS-8-POL	2 zones
16-poles, fixing clamp 2x TS-LTFS-16-POL	4 zones
24-poles, fixing clamp 2x TS-LTFS-24-POL	6 zones

Cables

+ Compensation cables, FeCuNi (for thermocouples type J and L)
+ Load cables (max. 16 A)
+ Combination cables for load & TC (for thermocouples type J and L)

Cableware sold by the meter

These types of cable are suitable for assembling customized connecting cables.

Depending on the type of wiring, different cable options are available, allowing you to connect the load and thermocouples either separately (acc. to DIN 16765 – A) or by way of a combination cable (acc. to DIN 16765 – B).

Order information

Compensation cables for TC type J or L (black)	**for a max.of**
4-cores, coiled TS-MWTFK-4	2 zones
10-cores, coiled TS-MWTFK-10	5 zones
16-cores, coiled TS-MWTFK-16	8 zones
24-cores, coiled TS-MWTFK-24	12 zones
Load cables for loads up to 16 A (grey)	
4-cores + ground, coiled TS-MWLK-4	2 zones
10-cores + ground, coiled TS-MWLK-10	5 zones
16-cores + ground, coiled TS-MWLK-16	8 zones
24-cores + ground, Zcoiled TS-MWLK-24	12 zones
Load / TC combination cables type J or L (red)	
4-cores, 2x TC, 2x load up to 16 A + ground, coiled TS-MWLTFK-4	1 zones
8-cores, 4x TC, 4x load up to 16 A + ground, coiled TS-MWLTFK-8	2 zones
16-cores, 8x TC, 8x load up to 16 A + ground, coiled TS-MWLTFK-16	4 zones
24-cores, 12x TC, 12x load up to 16 A + ground, coiled TS-MWLTFK-24	6 zones

Accessories

Spare parts / genuine accessories

Genuine spare parts will be available for at least 10 years from the date of purchase for all TEMP-STAR controllers.

The use of genuine accessories ensures perfect operation and complete guarantee during the term of warranty.

Accessories

- Cover plate for unused controller housing slots
  TS-BP-3HE-10TE
- Alarm cable for all TempStar
  controllers (12-poles connectors)
  TS-ALARMKABEL-12-POL

Selection of spare parts

- Load-circuit fuses, 16 A FF,
  for all TEMP-STAR controllers
  TS-LS-16-A-FF
- Cooling fan, 230 VAC,
  for all TEMP-STAR controllers
  TS-KL120
- Spare filters for cooling fans (10-piece set)
  TS-EF120
- Controller card MULTI 6,
  BG-MULTI6-BE1
- Control card for MASTER / PROFESSIONAL
  TS-MASTER-CB

HUMMEL Divisions

Electro Technology

Touchpanels - Solutions - Custom fabrication of Enclosures
Industrial Enclosures - Cable Glands - Cable Protection - Circular Connectors

Electronic

Operator Panels - Frontsheets and Keyboards - Battery Chargers
Cable Assembly - Sensors - Controls - Systems Solutions - Temperature Controllers

Heating Equipment

Solar Heating - Valves and Fittings - Compression Fittings
Heat Pumps - Thermostatic Heads

Customised

Parts made of Metal and Nylon

www.hummel.com

HUMMEL AG
Division EL
Lise-Meitner-Straße 2
79211 Denzlingen
Germany

Tel. +49 (0)76 66 / 9 11 10-0
Fax +49 (0)76 66 / 9 11 10-97 99
E-Mail info.el@hummel.com

HUMMEL AG
Lise-Meitner-Straße 2
79211 Denzlingen
Germany
www.hummel.com

intermedia 06.14